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EXAMINER	
TORRES, JUAN A	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,180	PERETS ET AL.	
	Examiner	Art Unit	
	Juan A. Torres	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-10,12-29 and 31-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-10,12-19,21-29 and 31-37* is/are rejected.

7)☒ Claim(s) *20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 July 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The modifications to the drawings were received on 07/25/2007. These modifications are accepted by the Examiner.

In view of the amendment filed on 07/25/2007, the Examiner withdraws the drawings objections of the previous Office action.

Specification

The modifications to the specification were received on 07/25/2007. These modifications are accepted by the Examiner.

In view of the amendment filed on 07/25/2007, the Examiner withdraws the specification objections of the previous Office action.

Claim Rejections - 35 USC § 101

The modifications to the claims were received on 07/25/2007. These modifications are accepted by the Examiner.

In view of the amendment filed on 07/25/2007, the Examiner withdraws claim rejections under 35 USC § 101 to claims 33-36 of the previous Office action.

Response to Arguments

Applicant's arguments with respect to claims 1, 7, 12, 22 26 and 33 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7-10, 12, 13, 15-17, 19, 21-23, 26-29, 33, 34, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostman (US 20010046221 A1) in view of Guey (US 6754253 B2).

Regarding claim 1, Ostman discloses detecting two or more received multipath components (figure 2 paragraphs [0003]-[0004]); grouping symbols of the two or more received multipath components into at least first and second groups based on a delay of the two or more multipath components (figure 7 paragraphs [0037]-[0038]); allocating a first processing window to process the first group of multipath components (figures 8a and 8b WW1 paragraphs [0041]-[0042]); and allocating a second processing window to process the second group of multipath components (figures 8a and 8b WW2 paragraphs [0041]-[0042]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 2, Ostman and Guey disclose claim 1, Ostman also discloses combining a first output of the first processing window with a second output of the second processing window into a single output (figure 10, block AR3 paragraph [0059]).

Regarding claim 3, Ostman and Guey disclose claim 1, Ostman also discloses determining a length for the first processing window (figures 7, 8b and 10, WW1 paragraphs [0037]-[0039]), the length of the first processing window is greater than a length of the desired symbol (Ostman also discloses that each peak represent a multipath, every multipath means that the signal received at the receiver is delayed respect to direct path (see figure 1 of Ostman and figure 4 of Guey) so every symbol will be spread from the original send symbol is each window at least with the difference between peak in each window, so the length of the first processing window is greater than a length of the desired symbol at least by the difference between the first and last peak in each window, so the length of the first processing window is greater than a length of the desired symbol).

Regarding claim 4, Ostman and Guey disclose claim 1, Ostman also discloses determining a length for the second processing window (figures 7, 8b and 10, WW2 paragraphs [0037]-[0039]), the length of the second processing window is greater than a length of the desired symbol (Ostman also discloses that each peak represent a multipath, every multipath means that the signal received at the receiver is delayed respect to direct path (see figure 1 of Ostman and figure 4 of Guey) so every symbol will be spread from the original send symbol is each window at least with the difference between peak in each window, so the length of the first processing window is greater

than a length of the desired symbol at least by the difference between the first and last peak in each window, so the length of the first processing window is greater than a length of the desired symbol).

Regarding claim 5, Ostman and Guey disclose claim 1, Ostman also discloses positioning the first and second processing windows around the desired signal within the first group and within the second group, respectively (figures 7, 8b and 10, WW1 and WW2 paragraphs [0037]-[0039]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 7, Ostman discloses a receiver to output signals of two or more received multipath component (figure 10 paragraph [0056]); a processor to group signals of said two or more multipath components into first and second groups based on a relative delay between the signal within the first group of multipath components and the within the second group of multipath components (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]); and a decoder having at least a first processing window unit to detect said signal within said first group of

multipath components and a second processing window unit to detect the signal within said second group of multipath components (figure 10 paragraph [0056], [0057] and [0062]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 8, Ostman and Guey disclose claim 7, Ostman also discloses a combiner to combine a first output signal of the first processing window unit with a second output signal of the second processing window unit to provide a single output signal (figures 8b and 10, block AR3 paragraph [0059]).

Regarding claim 9, Ostman and Guey disclose claim 7, Ostman also discloses a processor to determine a length of a first processing window of the first processing window unit and a length of a second processing window of the second processing window unit wherein, the length the first processing window and the length of the second processing window are greater then a length of the desired symbol (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053] Ostman also discloses that each peak represent a multipath, every multipath means that the signal

received at the receiver is delayed respect to direct path (see figure 1 of Ostman and figure 4 of Guey) so every symbol will be spread from the original send symbol is each window at least with the difference between peak in each window, so the length of the first processing window is greater than a length of the desired symbol at least by the difference between the first and last peak in each window, so the length of the first processing window is greater than a length of the desired symbol).

Regarding claim 10, Ostman and Guey disclose claim 1, Ostman also discloses a processor positioning the first and second processing windows around the desired signal within the first group and within the second group, respectively ((figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 12, Ostman discloses grouping signals of two or more received multipath components of a received baseband signal in two or more groups to detect a desired signal wherein, the grouping is based on a delay spread between the two or

more components (figure 7 paragraphs [0037]-[0038]); and processing said desired signal in the two or more groups of symbols of the multipath components by positioning two or more processing windows around the desired signal within the two or more groups, respectively (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 33, Ostman discloses grouping signals of two or more received multipath components of a received baseband signal in two or more groups to detect a desired signal based on a delay spread between the desired signal of one multipath component to the, desired signal of another multipath component (figure 7 paragraphs [0037]-[0038]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would

have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claims 13 and 34, Ostman and Guey disclose claims 12 and 33, Ostman also discloses Ostman also discloses grouping signals within a first delay spread range in a first group (figure 8b and 10, WW1 paragraphs [0044]-[0045]); and grouping signals within a second delay spread range in a second group (figure 8b and 10, WW2 paragraphs [0044]-[0045]).Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claims 15 and 36, Ostman and Guey disclose claims 13 and 34, Ostman also discloses applying first and second processing windows to the first and second groups, respectively (figure 8b and 10, WW1 and WW2 paragraphs [0044]-[0045]); and combining soft outputs of the first and second processing windows into a desired output related to a detected signal (figures 8b and 10, block AR3 paragraph

[0059]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 16, Ostman and Guey disclose claim 12, Ostman also discloses decoding by a processing window a desired signal within first and second groups (figure 8b and 10, WW1 and WW2 paragraphs [0044]-[0045]); delaying a first processing result of the first group and a second processing results of the second group (figure 8b and 10, delay means DM101-103 and B10 paragraphs [0044]-[0045]); and combining the first processing result with the second processing result (figures 8b and 10, block AR3 paragraph [0059]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The

suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 17, Ostman and Guey disclose claim 15, Ostman also discloses assigning first and second window lengths to the first and second processing windows respectively (figures 7, 8b and 10, L1 and L2 paragraphs [0017], [0037]-[0039] and [0044]).

Regarding claim 19, Ostman and Guey disclose claim 15, Ostman also discloses adaptively positioning the first or the second processing windows to encompass the desired signal based on a communication system parameter (figures 7, 8b and 10, delay means τ_1 *and* $\Delta\tau_1$ and CPU paragraphs [0004], [0012] and [0049]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 21, Ostman and Guey disclose claim 15, Ostman also discloses processing the desired signal by applying to the signal of the two or more received multipath components of the baseband signal at least one processing window to

process the desired symbol in one group and at least one other processing window to process the desired symbol in two or more groups (figures 7, 8b and 10, WW1 and WW2 paragraphs [0017], [0037]-[0039] and [0044]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 22, Ostman discloses a receiver to provide signals of two or more received multipath component (figure 10 paragraph [0056]); a processor to group the signals of said two or more multipath components into first and second groups based on a relative delay between the signal of one multipath component and the signal of another multipath component (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]); and a decoder having a processing window unit to decode the signal within said first and second groups of signals of the two or more multipath components (figure 10 paragraph [0056], [0057] and [0062]); a first delay unit to delay a first processing result of the first group (figure 8b and 10, delay means DM101, B10 and DM103); and a second delay unit to delay a second processing result

of the second group (figure 8b and 10, delay means DM102 and B10 paragraphs [0044]-[0045]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 23, Ostman and Guey disclose claim 22, Ostman also discloses a combiner to combine the first processing result with the second processing result (figures 8b and 10, block AR3 paragraph [0059]).

Regarding claim 26, Ostman discloses Ostman discloses an internal antenna to receive a signal having multipath components (figure 1 antenna in the MS unit paragraphs [0002], [0037], and [0039]); a processor to group signals of two or more multipath components in first and second groups based on a relative delay between the desired signal of one multipath component and the desired signal of another multipath component (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]); a decoder having at least a first processing window unit to detect the desired signal within the first group a second processing window unit to detect the desired signal within a second group (figures 7, 8b and 10, WW1 and WW2 paragraphs [0017],

[0037]-[0039] and [0044]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 27, Ostman and Guey disclose claim 26, Ostman also discloses a combiner to combine a first output signal of the first processing window unit with a second output signal of the second processing window unit to provide a single output signal (figures 8b and 10, block AR3 paragraph [0059]).

Regarding claim 28, Ostman and Guey disclose claim 26, Ostman also discloses that the processor is configured to determine a length of a first processing window of the first processing window unit and a second processing window of the second processing window unit wherein, the length the first processing window and the length of the second processing window are greater then a length of the desired symbol (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]. Ostman also discloses that each peak represent a multipath, every multipath means that the signal received at the receiver is delayed respect to direct path (see figure 1 of Ostman and figure 4 of Guey) so every symbol will be spread from the original send symbol is each

window at least with the difference between peak in each window, so the length of the first processing window is greater than a length of the desired symbol at least by the difference between the first and last peak in each window, so the length of the first processing window is greater than a length of the desired symbol)).

Regarding claim 29, Ostman and Guey disclose claim 28, Ostman also discloses that the processor is configured to position the first and second processing windows of the first and second processing windows units around the desired signal within the first group and the second group, respectively (figures 8a and 8b CPU paragraphs [009], [0041], [0045], [0049], [0051] and [0053]). Ostman doesn't specifically disclose that the processing of the multipath components in the rake receiver is used to process the desired symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Regarding claim 37, Ostman and Guey disclose claim 15, positioning two or more processing windows around the desired signal within the two or more groups respectively to encompass the desired signal within the processing window (figures 7, 8b and 10, delay means τ_1 *and* $\Delta\tau_1$ and CPU paragraphs [0004], [0012] and [0049]). Ostman doesn't specifically disclose that the processing of the multipath components in

the rake receiver is used to process the symbols. Guey discloses a rake receiver used multipath components to process desired symbols (figure 6 lines 10-31). Ostman and Guey teachings are analogous art because they are from the same field of endeavor of ranging system. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the rake receiver disclosed by Guey in the multipath window technique disclosed by Ostman. The suggestion/motivation for doing so would have been to adapt to different radio environments using one, two or several windows (Ostman abstract).

Claims 14, 24, 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostman and Guey as applied to claims 12, 22, 28 and 33 above, and further in view of Poor ("Probability of Error in MMSE Multiuser Detection", IEEE Trans. Information Theory, vol. IT-43, No. 3, pp. 858 871, May 1997) (see also Applicant Admitted Prior Art in page 7 paragraph [0022], that could also be used to formulate this rejection).

Regarding claim 14, Ostman and Guey disclose claim 12, Ostman and Guey don't disclose processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection. Poor discloses processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection (abstract; and section III pages 858 and 861-863). Ostman, Guey and Poor are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MMSE MUD disclosed by Poor in the reception

technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to reduce the probability of error of the received signal (Poor abstract).

Regarding claim 24, Ostman and Guey disclose claim 22, Ostman and Guey don't disclose processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection. Poor discloses processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection (abstract; and section III pages 858 and 861-863). Ostman, Guey and Poor are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MMSE MUD disclosed by Poor in the reception technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to reduce the probability of error of the received signal (Poor abstract).

Regarding claim 31, Ostman and Guey disclose claim 28, Ostman and Guey don't disclose processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection. Poor discloses processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection (abstract; and section III pages 858 and 861-863). Ostman, Guey and Poor are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MMSE MUD disclosed by Poor in the reception technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to reduce the probability of error of the received signal (Poor abstract).

Regarding claim 35, Ostman and Guey disclose claim 33, Ostman and Guey don't disclose processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection. Poor discloses processing samples of the received baseband signal in the group by minimum mean squared error multiuser detection (abstract; and section III pages 858 and 861-863). Ostman, Guey and Poor are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MMSE MUD disclosed by Poor in the reception technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to reduce the probability of error of the received signal (Poor abstract).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ostman and Guey as applied to claim 15 above, and further in view of Reznik (US 6748013 B2).

Regarding claim 18, Ostman and Guey disclose claim 15, Ostman and Guey don't specifically disclose overlapping the first and second windows. Reznik discloses overlapping the first and second windows (figure 5 column 10 lines 12-35). Ostman, Guey and Reznik are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the overlapping technique disclosed by Reznik in the reception technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to reduce the computation time (Reznik column 10 lines 31-35).

Claims 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostman and Guey as applied to claims 23 and 27 above, and further in view of Tiirola (US 20010017883 A1) (see also Applicant Admitted Prior Art in page 7 paragraph [0022], that could also be used to formulate this rejection).

Regarding claim 25, Ostman and Guey disclose claim 15, Ostman and Guey don't specifically disclose using a maximal ratio combining (MRC) method. Tiirola discloses using a maximal ratio combining method (paragraph [0004]). Ostman, Guey and Tiirola are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MRC technique disclosed by Tiirola in the reception technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to the influence of noise and interference (Tiirola column 10 lines 31-35).

Regarding claim 32, Ostman and Guey disclose claim 27, Ostman and Guey don't specifically disclose using a maximal ratio combining (MRC) method. Tiirola discloses using a maximal ratio combining method (paragraph [0004]). Ostman, Guey and Tiirola are analogous art because they are from the same field of endeavor of multiuser systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the MRC technique disclosed by Tiirola in the reception technique disclosed by Ostman and Guey. The suggestion/motivation for doing so would have been to the influence of noise and interference (Tiirola column 10 lines 31-35).

Allowable Subject Matter

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is 571-272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

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Juan Alberto Torres
08-02-2007

M. G

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER